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SERUM CALCIUM LEVELS BUT NOT SERUM PHOSPHATE PREDICT ISCHEMIC STROKE IN THE COMMUNITY

ACC Poster Contributions
Ernest N. Morial Convention Center, Hall F
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Session Title: Identifying Preventing and Treating Atherosclerosis in the 21 st Century
Abstract Category: 17. Risk Reduction and Rehabilitation
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Background: Patients with diseases of the mineral metabolism characterized by hypercalcemia or hyperphosphatemia, such as kidney failure and secondary hyperparathyroidism, have a very high risk of developing cardiovascular diseases. Moreover, in the community, higher levels of serum (s-) calcium and phosphate, even within the normal ranges, have been associated with increasing blood pressures and also with diseases and death from cardiovascular causes. Still, the association between s-calcium s-phosphate and the development of stroke in the community has not been reported.

Methods: In a prospective, community-based study of 1164 elderly men without stroke or transient ischemic attack at baseline (mean age 71 years, the ULSAM study), the association between s-calcium or s-phosphate and a combined endpoint of fatal and non-fatal ischemic stroke was investigated.

Results: During follow-up (median 8.8 years), 123 individuals suffered from ischemic stroke. In multivariable Cox-regression analyses adjusting for established risk factors for stroke (age, hypertension, diabetes, electrocardiographic left ventricular hypertrophy, atrial fibrillation, smoking and hypercholesterolemia) and for and variables reflecting mineral metabolism (plasma parathyroid hormone, serum calcium, serum phosphate, plasma vitamin D and glomerular filtration rate). Higher s-calcium was associated with an increased risk of stroke (hazard ratio for 1-SD increase of s-calcium, 1.27, 95% CI 1.03-1.58, p=0.026). Levels of s-calcium also predicted ischemic stroke in individuals with no apparent disturbance of the mineral metabolism. There were no association between levels of s-phosphate or the calcium-phosphate product and stroke.

Conclusion: In a large community-based sample of elderly men, s-calcium predicted ischemic stroke, also after accounting for established cardiovascular risk factors and for variables reflecting mineral metabolism. Our data support the previous findings of s-calcium being involved in the development of cardiovascular diseases. However, s-phosphate or the calcium-phosphate product did not predict stroke.